**Test Plan:**

RFID-Based Library Management System

Bulldogs Book Express

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1.0 Test Plan: Student Use Cases

Table 1 Feature: Library Catalog

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Expected Result | Testing Type | Feature Essential | Automated |
| Scenario 1: Search for a book by title | The system displays a list of books matching the title | Functional (Black) | Nice to have | No |
| Scenario 2: Search for a book by author | The system displays a list of books by the specified author | Functional (Black) | Nice to have | No |
| Scenario 3: Search for books in a specific category | The system shows a list of books in the chosen category | Functional (Black) | Nice to have | No |
| Scenario 4: Attempt to search with no results | The system provides a "no results found" message | Negative (Black) | Nice to have | No |
| Scenario 5: View book details | Users can access detailed information about a specific book | Functional (Black) | Nice to have | No |

Table 2 Feature: Borrow and Return Books with ID or Credentials

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Expected Result | Testing Type | Feature Essential | Automated |
| Scenario 1: Borrow a book with valid credentials | The book is successfully borrowed, due date displayed | Functional (Black) | Required | No |
| Scenario 2: Attempt to borrow a book with invalid credentials | The system prevents borrowing with invalid credentials | Negative (Black) | Required | No |
| Scenario 3: Return a borrowed book | The book is successfully returned, account updated | Functional (Black) | Required | No |
| Scenario 4: Attempt to return a book that wasn't borrowed | The system prevents returning un-borrowed books | Negative (Black Box) | Required | No |

Table 3 Feature: View Account Status and Due Dates

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Expected Result | Testing Type | Feature Essential | Automated |
| Scenario 1: View account status | Users can see their account status, including borrowed books | Functional (Black) | Required | No |
| Scenario 2: View due dates for borrowed books | Users can see the due dates for their borrowed books | Functional (Black) | Required | No |
| Scenario 3: Check due dates for no borrowed books | The system provides a message stating no books are currently borrowed | Functional (Black) | Required | No |

Table 4 Feature: Provide Feedback about Library Services

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Expected Result | Testing Type | Feature Essential | Automated |
| Scenario 1: Submit feedback | Users can successfully submit feedback/comments | Functional (Black) | Nice to have | No |
| Scenario 2: Attempt to submit empty feedback | The system prevents submitting empty feedback | Negative (Black) | Nice to have | No |
| Scenario 3: Provide feedback anonymously | Users have the option to submit feedback anonymously | Functional (Black) | Nice to have | No |

Table 5 Feature: Receive Library Notifications/Updates

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Expected Result | Testing Type | Feature Essential | Automated |
| Scenario 1: Opt-in to receive notifications | Users can successfully opt-in for library notifications | Functional (Black) | Nice to have | No |
| Scenario 2: Opt-out of receiving notifications | Users can successfully opt-out of library notifications | Functional (Black) | Nice to have | No |
| Scenario 3: Receive timely notifications | Users receive library notifications and updates as scheduled | Functional (Black) | Nice to have | No |

2.0 Test Plan: Librarian Use Cases

Table 6 Feature: Add, Remove, or Update Books in Catalog

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Expected Result | Testing Type | Feature Essential | Automated |
| Scenario 1: Add a new book to the catalog | The book is successfully added to the catalog | Functional (Black) | Required | No |
| Scenario 2: Remove an existing book from catalog | The book is removed from the catalog | Functional (Black) | Required | No |
| Scenario 3: Update book details in the catalog | Book information is updated in the catalog | Functional (Black) | Required | No |
| Scenario 4: Attempt to add a duplicate book | The system prevents adding duplicate books | Negative (Black) | Required | No |

Table 7 Feature: Process the Kiosk via RFID Tag Scanning with Automatic Updates

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Expected Result | Testing Type | Feature Essential | Automated |
| Scenario 1: Successfully check out a book | The book is checked out, catalog updated | Functional (Black) | Required | No |
| Scenario 2: Attempt to check out an unavailable book | The system prevents checking out unavailable books | Functional (Black) | Required | No |
| Scenario 3: Check out a book with low battery RFID tag | The system should handle low battery situations gracefully | Functional (Black) | Required | No |

Table 8 Feature: Generate Reports

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Expected Result | Testing Type | Feature Essential | Automated |
| Scenario 1: Generate circulation statistics report | The report is generated with accurate data | Functional (Gray) | Required | Yes |
| Scenario 2: Generate inventory summary report | The report summarizes the current inventory | Functional (Gray) | Required | Yes |
| Scenario 3: Customize and export user demographics report | The customized report is exported as requested | Functional (Gray) | Required | Yes |